Automated Commercial Environment—Requirements Recommendation

Date:	17 January, 2001
Number:	TIN-001
Requestor:	Steve Graham – Micro Software Services
Customs Co-Chair:	(signature)
Trade Co-Chair:	(signature)

Requirement

The attached report, *TSN Trade Interface Subcommittee – ACE Requirements* (TI Report) represents the culmination of the subcommittee's work in identifying requirements for ACE from a trade interface perspective.

Business Need

The trade interface subcommittee was chartered to investigate how the trade would like to communicate with Customs. The TI Report addresses in Sections 2.1 and 2.2 the assumptions and communication modes identified by the trade as being of interest to them in communicating with Customs.

Technical Need

Section 2.2 of the TI Report provides at a high level the technical characteristics of the communications modes identified by the trade.

Benefits

Risks

Related Subcommittees

Business Applications

Priority: **Critical** ☐ **High** ☐ **Medium** ☐ **Low** ☐

Customs Use Only		
Approved ☐	Not Approved ☐	Further Evaluation Required ☐

TSN Trade Interface Subcommittee - ACE Requirements

Version 2.0

17 January, 2001

Customs Modernization Program

Approvals

U.S. Customs Service

Mike Brown

Approved by:

_____

Date

**Trade Representative –
Micro Software Services**

Steve Graham

Approved by:

_____

Date

Record of Changes

Change Number	Date	Reference (Table, Figure, or Paragraph Sections)	A=Add M=Modify D=Delete	Brief Description of Change	Change Request #
1	7/6/2001	All	A	Original issue	N/A
2	7/9/2001	Sections 2.2 and 2.3	M	TRW comments	N/A
3	8/9/2001	Sections 2.1 and 2.2	M	Comments from 8/8/2001 TURIC meeting	N/A
4	1/8/2002	Sections 2.1, 2.2 and 2.4	M	Comments from 1/4/2002 and 1/172002 TI Subcommittee meeting	N/A

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1. Introduction

This report documents the work of the Trade Support Network's (TSN)'s Trade Interface Subcommittee in identifying requirements for the U.S. Customs Service Automated Commercial Environment (ACE).

1.1 Trade Interface Overview

As documented in the Trade Interface Subcommittee charter, the focus of the Trade Interface Subcommittee is to make recommendations about the implementation of the interface between Customs and the Trade within the ACE. The responsibilities of the Trade Interface Subcommittee are restricted to the user requirements for the interface between Customs and the Trade. This includes, but is not limited to, telecommunications, user interfaces, Electronic Data Interchange (EDI), Extensible Markup Language (XML), messaging (Websphere - MQ), Internet interfaces, and Virtual Private Networks (VPNs).

1.2 Background

A Trade Support Network was established by Customs in 1994 to provide a forum for the discussion of significant redesign efforts. There are over 120 members of the TSN that represent the entire breadth of the trade community, including trade associations, importers, brokers, carriers, sureties and others. Beause Customs is entering a phase of ACE development where timely, focused input from the trade is critical, Customs has established a TSN subcommittee structure through which Customs hopes to receive information relating to specific topical areas. While the subcommittee topic areas are fluid based on the stage of ACE development, the current proposed subcommittee topic areas are:

- Account Management
- Entry Process
- Revenue Management
- Multimodal Manifest
- International Trade Data System (ITDS)
- Trade Interface
- Business Applications in Technology

The general purpose of each subcommittee is to identify legal, procedural, or systems issues and priorities specific to the topic area and to discuss the development of user and functional requirements where appropriate.

Plenary TSN conferences are being held three times per year with TSN members to solicit input on various redesign activities and to receive reports from the various subcommittees.

The goal is for the modernized Customs to work for everyone, so Customs will make every effort to ensure that Trade input is gathered on key issues.

1.3 Purpose

The purpose of this document is to provide information and requirements developed by the Trade Interface Subcommittee to the eCustoms Partnership.

1.4 Scope

This document includes the detailed requirements for ACE increment 1.0, and high-level requirements for all of ACE as developed by the Trade Interface Subcommittee. The schedule for this effort assumed an August 1st delivery for the detailed requirements for ACE increment 1, and a September 5th delivery for the high-level requirements for all of ACE.

1.5 Audience

The expected audience for this document is other TSN subcommittees that require an understanding of trade interface requirements and the e-Customs Partnership.

1.6 Related Documents

- *ACE Functional Groups*, May 11, 2001, CMO-PAPR-007

- *Customs Systems And Infrastructure Overview*, October 14, 1999

- *U.S. Customs Service Strategic Plan Fiscal Years 2000 – 2005*

2. Trade Interface Products

The Trade Interface Subcommittee developed four (4) products that capture the ACE requirements from the trade interface standpoint. These products include the list of assumptions (Section 2.1), a list of communications modes (Section 2.2), existing ACS workload (Section 2.3), and a matrix that maps the ACE functional groups to the identified communications modes (Section 2.4).

2.1 Assumptions

- **Use XML:** XML will be incorporated into ACE. Customs has historically developed proprietary standards for EDI, and under ACE should ensure that XML utilization for Trade interfaces complies with appropriate international standards.

- **Legacy Support**: Whenever an ACE capability is successfully deployed that would replace a legacy interface capability, the legacy interface will be supported for five years. In the event that use of the legacy interface by Trade partners ceases, the older interface may be eliminated in less than five years.

- **Imagery**: Image transfer will be supported under ACE – e-Customs Partnership to choose and document image format (e.g., TIFF, JPEG, etc.).

- **Toll-free Dial-in**: Existing Customs toll-free lines for system access (ACS) will be phased-out under ACE. Timetable for phase out will be consistent with the Legacy Support assumption above. Methodologies will be developed to supply data to ACE via the Internet.

- **Security**: Electronic information passed between Trade partners and USCS is subject to the Trade Secrets Act and requires appropriate security protection.

- **EDI Standards**: ACE will permit transmission by the following EDI standards listed below. Further, that mapping between standards will be provided for all message types.

  ANSI X-12
  UN/EDIFACT
  CATAIR
  CAMIR
  AESTIR
  Cargo IMP (USCS implementation will be more closely aligned with IATA standards)

2.2   Communications Modes

- **Direct Connect:** This mode is targeted at Trade partners with transaction volume at, or exceeding 1000 per day. Websphere MQ software is the standard middleware component and data is sent in EDI format. A direct connection between the Trade partner and USCS is established via WAN technology such as frame relay. Security is provided via Virtual Private Network (VPN) or link encryption technology. To allow for competition, at least two encryption products and two network providers will be supported.

- **Internet Connect:** This mode is targeted at Trade partners with transaction volume ranging between 0 and 999 transactions per day. Websphere MQ software is the standard middleware component and data is sent in EDI format. Connection between Trade partner and USCS is established via Internet. Security is provided via VPN. To allow for competition, at least two VPN products will be supported.

- **Web Access:** The mode is targeted at account management and not intended for filing of entry transactions. Access is provided via a web-based interface over the Internet. Security is provided via Secure Sockets Layer (SSL).

- **Transponder**: Transponders or Automatic Vehicle Identification (AVI) systems are currently used in modernization pilot systems (National Customs Automation Program and International Trade Data System). This technology consists of electronic tags carried by trucks. Tags are read by antenna and receiver systems located at the Port of Entry (POE). Receiver systems are coupled to a networked computer that provides tag ID and other information to USCS application systems. Tag ID is used to associate truck with advanced electronic filings from Trade partners.

- **Personal Digital Assistant (PDA)**: PDAs are used as mobile terminals for web-based applications. Possibilities envisioned for this technology include access to internal USCS applications for Inspectors working Primary and Secondary areas at POEs (e.g. quickly adding inspectors to Primary area when fixed booths become backed up). Data would be transmitted using Cellular Digital Packet Data or comparable technology. Applications that are used on PDAs are designed using standards such as Wireless Application Protocol to enhance usability in on small screen environment. Security is provided via SSL or VPN.

- **Broadcast Capabilities**: The current USCS Automated Broker Interface (ABI) system contains a capability within the application software to send messages to trade partners (i.e., ABI Administrative Messages). The Administrative Message capability is primarily used by the Office of Information and Technology Client Representative Branch. Messages sent by this means include:

  - System change notifications

  - Transmission procedure changes

  - Outage notification messages

  - Quota-related messages

  This capability may be generically referred to as "push" technology and is a vital method of assured information delivery to USCS trade partners. While web sites are well suited for many types of information dissemination, they do not push information with delivery assurance. Web sites are "pull" technology. The Trade Interface Subcommittee recommends that modernized systems include an information push capability that is functionally comparable to the Administrative Message feature of ABI. The new adminstrative message feature must have a backup (i.e., must be able to advise Trade partners when system hosting broadcast capability is inoperable). Trade Partners should have the option of designating E-maill addresses for receipt of broadcast messages.

- **Mixing of Communication Modes**: There may be cases where it is advantagous for a Trade partner to opt for a mix of communications modes (e.g., Internet Connect and Direct Connect links with USCS) Trade interface gateways developed by the e-Customs Partnership should be capable of supporting such mixed mode operation.

- **Communication Mode Peformance**: All communications modes, exclusive of uncontrollable aspects of the Internet, must be available 24 hours a day, every day of the year. Performance of communications modes, exclusive of uncontrollable aspects of the Internet, must be demonstrably within industry norms. Comparison of performance metrics for similar communications implementations should be used to set nominal response time for those developed by the eCommmerce Partnership.

2.3   Existing ACS Workload Statistics

The Request for Proposal (RFP) does not contain any substantive information on either the complexity of the current Customs computer systems, or on the amount of data currently processed by these systems. Information on both the complexity of the current system as well the volume of data processed by the system are available in RFP supporting documents on the Customs "Contracts and Procurement" web page under the RFP Bidder's Library. Two documents in particular provide this information: the Customs Systems And Infrastructure Overview, and the U.S. Customs Service Strategic Plan Fiscal Years 2000 – 2005, chapter on "Trade and Economic Growth". Both documents along with growth estimates provided by Dr. Perng of the Office of Strategic Trade will be discussed separately below.

The Customs Systems And Infrastructure Overview is available at http://www.customs.treas.gov/contract/contract.htm. This document is dated October 14, 1999. The author(s) is unknown. This document is a complete overview of the Customs ACS system as it existed in 1999. The document includes information covering such subjects as: the number of lines of code in ACS (5.8 million); the number of users of the system (36,000 - 19,182 Customs, the remainder other agency employees, etc.); and the number of Customs sites (955) broken out by size (small, medium, large and extra large). For this task, however, the report also includes information on the volume of data handled by the ACS system in 1999.

The Customs Systems And Infrastructure Overview includes the following information on the size and volume of the ACS system, note the last bullet for an estimate of annual growth:

- One thousand CA Datacom databases

- Three thousand database tables consisting of 4.4 billion records of data

- Databases range in size from 1 million to 300 million records

- Processing one million transactions per day, resulting in 500 million database requests.

- Running 65,000 batch jobs per day

- Growth in volume of 20 percent annually

The second document that contains some specific data on the volume of data processed by the current Customs system is the U.S. Customs Service Strategic Plan

Fiscal Years 2000 – 2005. This document is available at
http://www.customs.treas.gov/about/strat/trade.pdf. Author is unknown. There are two
particular chapters that include data important to this task: "Trade and Economic
Growth", and "Border Security."

The chapter titled "Trade and Economic Growth" contains the following items that
pertain to this task:

In Fiscal Year 1999, Customs….

- Processed 21.4 million commercial formal/informal entries.

- Collected $22.1 billion in gross revenue from tariff duties, user fees, IRS excise
  taxes, and other assessments on imports valued at $977 billion

Looking to the future….

- Imports will reach $1.965 trillion by 2005 and exports will total $1.2 trillion by 2003.

In addition to the above information Dr. Perng of the Office of Strategic Trade generated
estimates of the increase in the total number of formal and informal entries processed
by Customs. These estimates were used to generate the workload/staffing projections
provided as Figure 1.

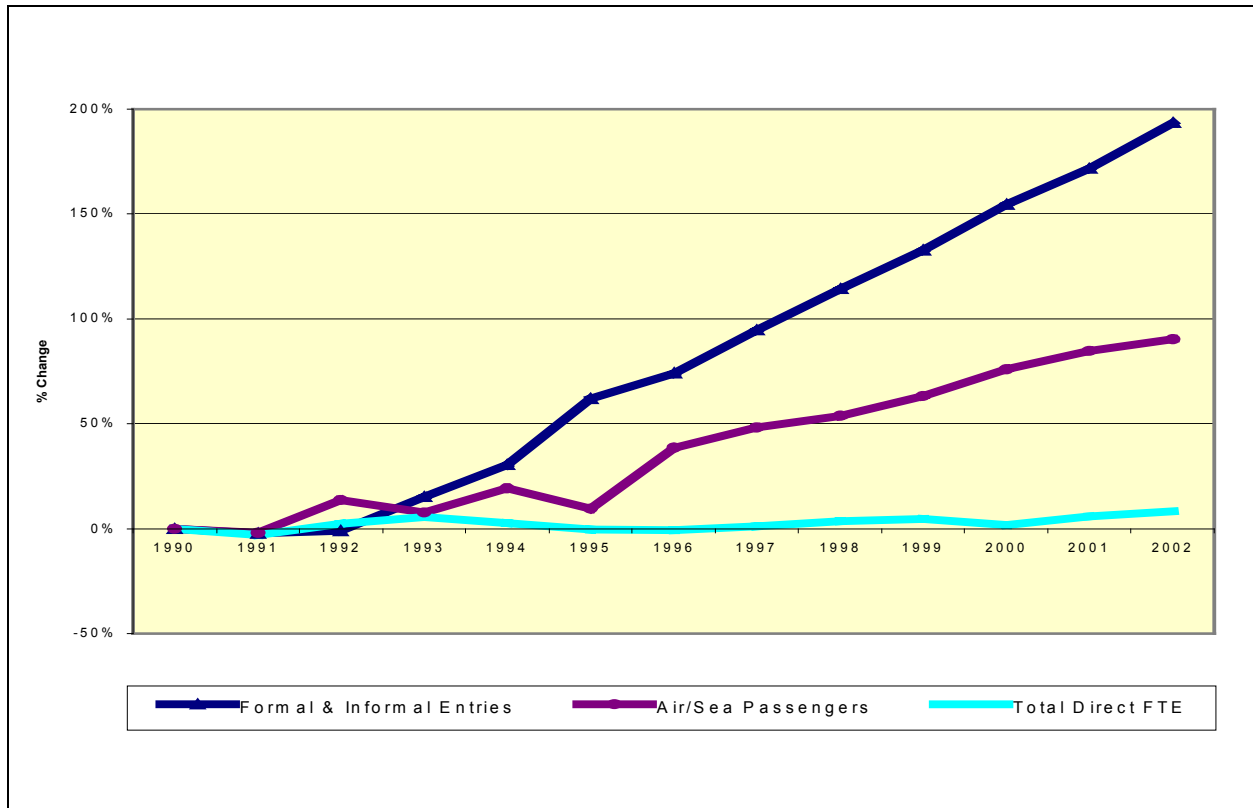| Actual	FY 2000	23.5 million
Projected	FY 2001	25.3 million
	FY 2002	27.1 million
	FY 2003	29.0 million
	FY 2004	30.8 million
	FY 2005	32.6 million
	FY 2006	34.5 million
	FY 2007	36.3 million
	FY 2008	38.2 million
	FY 2009	40.0 million

Figure 1. - ACS Workload/Staffing Projections

2.4   ACE Functionality to Communication Mode Matrix

The Trade Interface Subcommittee developed a matrix that maps at a high level the ACE functional groups to the communications modes identified in Section 2.2. This mapping provides a summary of the features and functions of ACE that will be utilized by Trade users of different sizes (in terms of numbers of transactions). The matrix includes design notes from the trade interface committee where appropriate. This matrix is provided as Table 1.

Table 1 - ACE Functional Groups to Communications Modes

ACE Group	Description	Direct Connect	Internet Connect	Web Access	Wireless Transpond (AVI)	Wireless PDAs (WAP)	Notes
0.3	Entry Summary / Data Review	X	X				
0.3	Periodic Payment / Statement	X	X				
0.4	Account Services Enhancements	X	X	X			
0.4	Account Contact Log			X		X	Not a trade function (Internal Only)
1	ITDS Integration (DOT, INS)	X	X			X	Trade data entry portion
1	Track 4 - Air, Sea and Rail	X	X			X	
1	Plus NCAP Refinements	?	?		?	?	Too vague to define at this point.
1	Links to ACS/AMS Air, Sea, and Rail Manifests					X	Not a trade function (Internal Only)
2	External Common Interface	X	X	X	X	X	
3	Track 2 + 3 Sea and Rail	X	X		X		
3	Daily National Statement	X	X				

ACE Group	Description	Direct Connect	Internet Connect	Web Access	Wireless		Notes
					Transpond (AVI)	PDAs (WAP)	
	Processing						
3	Account Management Activity	X	X	X			
3	ITDS Integration (FDA)	X	X			X	Trade data entry portion
3	Links to ACS/AMS Sea & Rail Manifests					X	Not a trade function (Internal Only)
4	Tracks 2 + 3 Air	X	X			X	
4	Account Business Categories	X	X	X			
4	Links to ACS/AMS Air Manifest					X	Not a trade function (Internal Only)
4	Quota Entry/Processing	X	X			X	Is there a trade component to this (ELVIS entries)
4	Collections, Refunds, Deposits & Adjustments	?	?		?	?	Too vague to define at this point.
5	Internal Common User Interface	X	X		X	X	
6	Track 2+3 Truck	X	X		X	X	
6	RAMIS Interface			X			
7	Violation Billing	X	X				

ACE Group	Description	Direct Connect	Internet Connect	Web Access	Wireless		Notes
					Transpond (AVI)	PDAs (WAP)	
7	Enforcement Evaluation Team Support	X	X	X			This is mostly an internal Customs activity, however messages and electronic bills to importers are generated.
7	Reconciliation	X	X				
8	Enforce Filter			X		X	Not a trade function (Internal Only)
8	Anti Dumping / CVD Entry	X	X	X			Entry Filing for Direct and Internet Connects. Reference files and OGA access for Web Access.
8	Extracts to Sureties	X	X	X			
9	Import Declaration Acceptance (Warehouse, Rewarehouse, FTZ)	X	X			X	
9	LIMS Interface (Lab Analysis + Accreditation)	?	?	?	?	?	Too vague to define at this point.
9	ITDS Integration (Agriculture)	X	X				
9	Track 1 Manual Input			X			Manual Input by Customs
10	ITDS Integration (Fish &	X	X				

ACE Group	Description	Direct Connect	Internet Connect	Web Access	Wireless Transpond (AVI)	PDAs (WAP)	Notes
	Wildlife)						
10	Liquidation Processing	X	X				
11	Corrections to Import Declarations	X	X				
11	Voluntary Tenders	X	X				
11	Prior Disclosures	X	X				
11	Non Revenue Changes	X	X				
11	IRS Interface	X	X				Not a trade function (Internal & OGA Only)
11	Electronic Protest Filing / Processing	X	X				
11	Debit Voucher Processing	?	?	?	?	?	Too vague to define at this point.
12	Warehouse Withdrawls - Entry /Processing	X	X				
12	Courier Account Processing	X	X				
12	Line Release Integration	X	X				Part of ITDS
12	Electronic Bond Processing	X	X			X	

ACE Group	Description	Direct Connect	Internet Connect	Web Access	Wireless Transpond (AVI)	Wireless PDAs (WAP)	Notes
12	Consolidated Informal Entry / Processing	X	X				
13	Drawback Entries / Processing	X	X			X	
13	Bankruptcy Processing						Not a trade function (Internal Only)
14	FTZ Admission / Processing	X	X				
14	In-Bond Processing	X	X		X		
14	Designated Exam Site for Remote Filing	X	X		X		
14	Balance of Import Declaration Entry…	X	X		X		
14	Links to AES						Not a trade function (Internal Only)
15	Air AMS Integration	X	X			X	
15	Carrier Review Verifications						Not a trade function (Internal Only)
15	PVMQ Verifications						Not a trade function (Internal Only)

ACE Group	Description	Direct Connect	Internet Connect	Web Access	Wireless Transpond (AVI)	Wireless PDAs (WAP)	Notes
15	Premise Verifications						Not a trade function (Internal Only)
16	Sea AMS Integration	X	X			X	
16	Track 1 Full Live Entry					X	
16	Mail Entry / Processing	X	X			X	
16	ACS Mail Entry Integration						Not a trade function (Internal & OGA Only)
17	PRC (Problem Resolution Cycle)						Not a trade function (Internal Only)
17	Enforce Evaluation Teams						Not a trade function (Internal Only)
17	SEACATS Interface						Not a trade function (Internal Only)

Appendix A. Trade Interface Charter

Subcommittee for Trade Interface

Trade Support Network

The Trade Compliance vision introduced several concepts not available under the current Automated Commercial System (ACS) structure. The most obvious of these is the structuring of the new process and system by Account. In addition to the Trade Compliance vision, technology improvements have changed the way in which businesses and people communicate. U. S. Custom's modernization program and particularly the Automated Commercial Environment (ACE) need to take these changes in process and technology into account.

Objective:

This subcommittee is going to discuss and make recommendations about the implementation of the interface between Customs and the Trade within the ACE.

Scope:

The responsibilities of this subcommittee are restricted to the user requirements for the interface between Customs and the Trade. This includes, but is not limited to, telecommunications, user interfaces, EDI, XML, messaging (Websphere - MQ), Internet interfaces, and Virtual Private Networks (VPNs).

Membership:

The membership shall include members of the Trade Support Network who volunteered for participation on the Trade Interface Subcommittee.

There will be two co-chairs, one from Customs and one from the Trade. Customs has assigned Mr. Michael Brown as the Customs co-chair. Mr. Jim Bowman, Tower Group International, has been chosen as the co-chair from the Trade.

The MITRE representative will be responsible for capturing the major discussion outcomes and recommendations.

Processes and Responsibilities:

1. *Submit discussion topics and any related documentation.*

   Any participant may submit, in writing, agenda items or topics to be discussed at the committee meetings. Topics should be submitted to the co-chairs two weeks prior to the TSN meeting.

2. *Prepare an agenda.*

   The co-chairs will collect the submitted topics, collate and prioritize a list as the agenda for the next meeting, and distribute to the subcommittee membership.

3. *Review the agenda items and documentation.*

   All subcommittee members should review any material distributed in preparation for the TSN meeting.

4. *Conduct the TSN subcommittee meeting.*

The meeting will be conducted according to an adopted agenda, with members discussing as many agenda items as time permits.

5. *Vote when needed.*

   The subcommittee will determine if a recommendation goes forward. Consensus regarding an item is desirable, but not required. The co-chairs will accept recommendations from individuals and they will be forwarded as such.

6. *Plan for the next meeting.*

   At the conclusion of each meeting, the subcommittee will identify the disposition of agenda items that were not addressed, date and location of the next meeting, and any required follow-up actions.

7. *Prepare recommendations.*

   Co-chairs will prepare recommendations for review by all subcommittee members.

8. *Distribute outcomes and recommendations.*

   Co-chairs will distribute the discussion outcomes and proposed recommendations.

Meetings and Communication

The number of required meetings will be kept to a minimum by utilizing email for communications. It is anticipated that at least one subcommittee meeting will be required between each of the three full TSN meetings per year. Subcommittee meetings scheduled between full TSN meetings will be conducted by conference call.